

ABSTRACT

5 The invention relates to the use of a gene encoding a new outward rectifier potassium channel of *Vitis vinifera* to modify a phenotype relating to a size and the organic acid composition of grape berries. This gene is used in such a manner that it increases the size of such berries and the quantity of tartaric acid accumulated in them. To achieve this provision is made, for example, for the product of the gene to be over-expressed by transgenesis.

10 The invention also relates to a marker comprising a nucleotidic sequence encoding a polypeptidic sequence having at least a 40% similarity with a polypeptidic sequence deduced from the VvSOR gene (SEQ ID No. 1). This marker enables genes in other species of plants to be identified, these genes encoding new potassium channels similar to the potassium channel of grape berries, so that the size and/or organic acid composition of storage
15 organs of plants can also be modified.